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**SYSTEM AND METHOD FOR OPTIMAL ALLOCATION OF LINK
BANDWIDTH IN A COMMUNICATIONS NETWORK FOR
TRUNK ROUTING**

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ABSTRACT

A system and method for routing the maximum number of trunks on a network with resource constraints is described. The invention provides a unique modification of a multi-commodity mathematical model that maximizes flow in a capacity constrained network. The problem of routing the maximum number of trunks through a communications network can be described as a multi-commodity problem by mapping each trunk as a commodity. However, in the multi-commodity model, the resources or capacity used by a unit of any commodity is the same. This condition is too restrictive for contemporary multi-rate broadband networks because a high bandwidth traffic trunk consumes more bandwidth than a trunk with low bandwidth requirement. The invention provides a method to modify the multi-commodity model so that the capacity utilized by different trunks does not have to be identical.

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